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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/090,838	03/06/2002	Akira Tsuboyama	00684.003345	5725

5514 7590 06/16/2003

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EXAMINER

YAMNITZKY, MARIE ROSE

ART UNIT	PAPER NUMBER
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1774

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DATE MAILED: 06/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/090,838

Applicant(s)

TSUBOYAMA ET AL.

Examiner

Marie R. Yamnitzky

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2002, 24 May 2002 & 22 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 2,3,6,7,9 and 10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,5,8 and 11-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-14 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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1. This application contains claims directed to the following patentably distinct species of the claimed invention: a metal coordination compound of formula (1) and a device comprising the compound wherein

M is one of Ir, Pt, Rh or Pd; and

m is one of 1, 2 or 3; and

n is one of 0, 1 or 2; and

for partial structure ML_m of formula (2), CyN1 is one of Pr to Ta as shown on page 21 of the specification and CyC1 is one of Ph to Cz as shown on page 21 of the specification; and

partial structure ML'_n (if n is 1 or 2) is one of formula (3) or (4) wherein CyN2 of formula (3) is one of Pr to Ta as shown on page 21 of the specification and CyC2 of formula (3) is one of Ph to Cz as shown on page 21 of the specification.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. In addition, applicant is required to select an ultimate species to be used as the starting point for search and examination purposes. Currently, claims 1, 8 and 12-14 are generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

2. The election of species requirement was discussed during a telephone conversation with Peter Saxon on May 20, 2003. On May 27, 2003, Mr. Saxon left a voice mail message for the examiner in which a provisional election was made with traverse to prosecute the species in which M is Ir, m is 3, n is 0, CyN1 is Pr and CyC1 is Np2. Claims 1, 4, 5, 8 and 11-14 read on the elected species. Compound 45 was selected as the ultimate species. Affirmation of this election must be made by applicant in replying to this Office action. Claims 2, 3, 6, 7, 9 and 10 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to non-elected species. (While some prior art is applied in the present action to non-elected species, this action should not be taken as an examination on the merits of all species encompassed by the claims.)

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3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

4. The disclosure is objected to because of the following informalities:

The paragraph at page 15, lines 20-25 refers to the compound of formula (1) as providing higher phosphorescence yield and shorter phosphorescence life but it is not clear what the comparison is being made to.

The first line on page 17 recites "fine-membered ring structure". Applicants are requested to verify whether "fine" should read --five-- in this phrase.

Appropriate correction is required.

5. Claims 1, 4, 5, 8 and 11-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The definition of the optional substituent of the cyclic groups as set forth in claim 1 is not clear. It is not clear what the phrase "a halogen atom...a fluorine atom)" as set forth in lines 18-25 on page 58 is referring to. (Beginning at line 9 on p. 58, reference is made to an aromatic group capable of having a substituent. The examiner interprets this aromatic group as a possible

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optional substituent of the cyclic group. Lines 11-18 on p. 58 parenthetically set forth various atoms and groups. The examiner interprets these atoms and groups as defining the substituent which the previously recited aromatic group may have. If “a halogen atom...a fluorine atom)” as set forth in lines 18-25 on p. 58 refers to possible optional substituents for the cyclic groups CyN1, CyN2, CyC1 and CyC2, these possibilities are previously set forth at p. 57, l. 26-p. 58, l. 8. If “a halogen atom...a fluorine atom)” as set forth in lines 18-25 refers to possible substituents for the previously recited aromatic group, these possibilities are previously set forth at p. 58, l. 11-18.)

The definition of the at least one aromatic substituent that CyN1, CyN2, CyC1 and CyC2 must have is not clear. It is not clear what the phrase “a halogen atom...a fluorine atom)” as set forth beginning in line 25 on page 59 is referring to. If this phrase refers to possible substituents for the at least one aromatic substituent, these possibilities are previously set forth at p. 59, l. 18-25. If this phrase refers to possible aromatic substituents, applicants are using the term “aromatic” in a manner repugnant to the generally accepted meaning of the term.

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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7. Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Maestri et al. in *Advances in Photochemistry*, Vol. 17, pp. 1-68.

Maestri et al. disclose $\text{Pt}(\text{H-diphy})_2$ which is a metal coordination compound represented by present formula (1) wherein M is Pt, m is 2, n is 0 and CyN1 of formula (2) has an aromatic substituent. See formula (6) on page 9 of the prior art.

8. Claims 1, 4, 8 and 11-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Igarashi et al. (US 2001/0019782 A1).

Igarashi et al. disclose metal coordination compounds represented by present formula (1) wherein M is Ir. The iridium compounds are disclosed for use as light emitting compounds in organic electroluminescent devices (e.g. see paragraph [0002]).

Igarashi's compounds represented by formulae (1-12) and (1-19) are compounds represented by present formula (1) wherein M is Ir, m is 3, n is 0 and CyN1 of formula (2) has an aromatic substituent, thus meeting the limitations of the compound required by present claims 1, 4, 8 and 11-14.

Igarashi's compound represented by formula (1-42) is a compound represented by present formula (1) wherein M is Ir, m is 3, n is 0 and CyC1 of formula (2) has an aromatic substituent, thus meeting the limitations of the compound required by present claims 1, 4, 8 and 11-14.

Igarashi's compounds represented by formulae (1-45) and (2-6) also meet the limitations of the compound required by present claims 1, 8 and 12-14.

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9. Claims 1, 4, 8 and 11-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Thompson et al. (US 2002/0034656 A1).

Thompson et al. teach the modification of Ir(ppy)₃ by adding an aryl substituent in order to provide emissive compounds suitable for use in an organic electroluminescent device. See the whole published application, especially paragraphs [0023], [0050]-[0051] and [0169]-[0171]. Ir(ppy)₃ modified by substitution with an aryl substituent as taught by Thompson et al. meets the limitations of the compound required by present claims 1, 4, 8 and 11-14.

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1, 4, 5, 8 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Igarashi et al. (US 2001/0019782 A1) as applied to claims 1, 4, 8 and 11-14 under 35 U.S.C. 102(e) and for the further reasons set forth below.

Igarashi et al. disclose specific compounds within the scope of present formula (1) as noted in the rejection under 35 U.S.C. 102(e).

Igarashi et al. do not disclose a specific example of a compound of present formula (1) in which CyN1 is a pyridyl group and CyC1 is a naphthyl group wherein at least one of CyN1 and

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CyC1 has an aromatic substituent although such compounds are within the scope of Igarashi's iridium compounds.

Igarashi's compound represented by formula (1-62) is a compound represented by present formula (1) wherein M is Ir, m is 3, n is 0, CyN1 is a pyridyl group, CyC1 is a naphthyl group, and CyN1 is substituted. However, this prior art compound does not meet the present claim limitations because the substituent on CyN1 is a cyano group rather than an aromatic substituent. (Note that if the last eight lines of claim 1 were to be interpreted as referring to possible "aromatic" substituents for CyN1, CyN2, CyC1 and CyC2, then Igarashi's compound represented by formula (1-62) would anticipate a compound as required by claims 1, 4, 5, 8 and 11-14. Such an interpretation, however, would be repugnant to the meaning of the term "aromatic".)

Igarashi et al. teach that the metal coordination compounds may contain a variety of substituents, with aryl groups, heteroaryl groups and a cyano group all being disclosed as suitable substituents (e.g. see paragraphs [0049]-[0050]). Igarashi et al. disclose specific compounds represented by present formula (1) wherein CyN1 or CyC1 is substituted with an aromatic substituent, but no specific compounds in which CyN1 is a pyridyl group and CyC1 is a naphthyl and the pyridyl group and/or the naphthyl group is substituted with an aromatic substituent.

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to make metal coordination compounds similar in structure to those specifically disclosed by Igarashi et al. in order to provide metal coordination compounds suitable for use in

an organic electroluminescent device. Based on Igarashi's teachings as a whole, one of ordinary skill in the art would have reasonably expected that a compound similar to Igarashi's compound of formula (1-62), having an aromatic substituent instead of the cyano substituent or in addition to the cyano substituent, would be suitable for use in an organic electroluminescent device and would be capable of emitting light upon application of voltage across the electrodes of the organic electroluminescent device.

12. Claims 1, 5, 8 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson et al. (US 2002/0034656 A1).

See the whole published application, especially paragraphs [0023], [0050]-[0053] and [0169]-[0171] and Fig. 49. Thompson et al. disclose metal coordination compounds of the formula L_2MX such as L_2IrX for use as emissive compounds in organic electroluminescent devices. L and X are distinct bidentate ligands. Thompson et al. teach that pyridylnaphthalenes may be used as the L ligands (see Fig. 49). Thompson et al. do not specifically define R', R'' and R''' for Fig. 49, but one of ordinary skill in the art would have reasonably expected that metal coordination compounds containing a pyridylnaphthalene ligand as shown in Fig. 49 in which one or more of R', R'' and R''' represents an aryl substituent would provide light emissive compounds suitable for Thompson's purposes since Thompson et al. teach the modification of light emitting metal coordination compounds to include aryl substituents.

13. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or

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improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

14. Claims 1, 4, 5, 8 and 11-14 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9, 11 and 13-16 of copending Application No. 10/090,836. Although the conflicting claims are not identical, they are not patentably distinct from each other because the present claims are generic for the metal coordination compound, electroluminescence device and picture display apparatus of the copending claims in which CyC1 and/or CyC2 has at least one aromatic substituent represented by formula (5). See *In re Braithwaite*, 379 F.2d 594, 154 USPQ 29 (CCPA 1967).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

15. Miscellaneous:

Claim 1: In line 14 on p. 59, “atom;” should be changed to --atom);--.

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Claims 9-11 refer to a metal coordination compound according to claim 8, but claim 8 is drawn to an electroluminescence device. The preamble of each of claims 9-11 needs to be corrected to refer to the device.

16. Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (703) 308-4413. The examiner works a flexible schedule but can generally be reached at this number from 6:30 a.m. to 4:00 p.m. Monday, Tuesday, Thursday and Friday, and every other Wednesday from 6:30 a.m. to 3:00 p.m.

The current fax numbers for Art Unit 1774 are (703) 872-9311 for official after final faxes and (703) 872-9310 or (703) 305-5408 for all other official faxes. (Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (703) 872-9041.)

MRY
06/13/03



MARIE YAMNITZKY
PRIMARY EXAMINER

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